PE TITLE: Integrated Command & Control Applications

	RDT&E BUDGET ITEM J	USTIFIC	ATION	SHEET	(R-2 Ex	thibit)		DATE	DATE February 2002		
	ET ACTIVITY  Engineering and Manufacturing Deve	R AND TITLE OF Integ Itions	rated Co	mmand &	& Contro	I					
	COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
	Total Program Element (PE) Cost	7,664	5,783	226	244	263	266	272	Continuing	TBD	
2523	Product Lines	213	224	226	244	263	266	272	Continuing	TBD	
2524	Reuse and Component Support	7,451	5,559	0	0	0	0	0	0	13,010	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

## (U) A. Mission Description

The goal of the IC2A Program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented C2 capability by defining a reference architecture to enhance a common application use and reuse. Project 2523 minimizes development cost and time by defining a C2 architecture approach, supporting Defense Information Infrastructure Common Operating Environment (DII COE) acceptance testing to ensure compliance and interoperability, and providing tested, reusable software components from mature programs. The use of common product line designs during development based on a C2 reference architecture can improve software quality, interoperability and reliability while reducing fielding times and overall life cycle costs. Project 2524, Reuse and Component Support (RCS) identifies, tests, and provides reusable software components and products to the IC2A program. The RCS project developed a software reuse strategy for the DoD; and is developing a National Product Line Asset Center (NPLACE), a Congressional special interest item, to evaluate and analyze enterprise C2 system components based on primarily commercial off-the-shelf (COTS) products. The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers. For programs using product line concepts based on a C2 reference architecture.

### (U) B. Budget Activity Justification

Program is in Budget Activity 5 - Engineering and Manufacturing Development due to the nature of the effort.

Page 1 of 10 Pages

Exhibit R-2 (PE 0604740F

	RDT&E BUDGET ITEM JUSTIFICATION	DATE <b>Febru</b> a	ary 2002		
	GET ACTIVITY - Engineering and Manufacturing Development	PE NUMBER AND TITLE  0604740F Integrated  Applications	d Command &	& Control	
(U)	C. Program Change Summary (\$ in Thousands)				
(U) (U) (U)	Previous President's Budget Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research	<u>FY 2001</u> 213 7,664	FY 2002 224 5,824 -41	<u>FY 2003</u> 243	<u>Total Cost</u> TBD
(U) (U)	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions Adjustments to Budget Years Since FY 2002 PBR Current Budget Submit/FY 2003 PBR	7,664	5,783	-17 226	TBD TBD
(U)	Significant Program Changes: Congress added \$7.8 million in FY2001 to BPAC 652524, Reuse and Co	omponent Support.			
	Congress added \$5.6 million in FY2002 to BPAC 652524 for ASSET, N	NPLACE, and AF Product Line Eng	gineering (Reuse a	nd Component Support)	
	1	Page 2 of 10 Pages		Exhibit R-2	(PE 0604740F)

RDT&E BUDGET ITEM JU	JSTIFIC	ATION S	SHEET (	(R-2A E	xhibit)		DATE		ry 2002
BUDGET ACTIVITY  05 - Engineering and Manufacturing Deve	PE NUMBER AND TITLE  0604740F Integrated Command & Control  Applications					I	PROJECT <b>2523</b>		
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2523 Product Lines	213	224	226	244	263	266	272	Continuing	TBD

### (U) A. Mission Description

The software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability. Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on Defense Information Infrastructure Common Operating Environment (DII COE) principles to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

#### (U) FY 2001 (\$ in Thousands)

(U) \$213 Qualify components for product lines.

(U) \$213 Total

#### (U) FY 2002 (\$ in Thousands)

(U) \$224 Qualify components for product lines.

(U) \$224 Total

#### (U) FY 2003 (\$ in Thousands)

(U) \$226 Quality components for product lines.

(U) \$226 Total

#### (U) B. Project Change Summary

Project 2523 Page 3 of 10 Pages Exhibit R-2A (PE 0604740F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)													
	GET ACTIVITY - Engineering and Manufacturing Development		PE NUMBER AND TITLE  0604740F Integrated Command & Co Applications						Contr	ontrol			PROJECT <b>2523</b>	
(U)	C. Other Program Funding Summary (\$ in Thousands)  FY 2001 FY 2002 FY 2003  Actual Estimate Estimate	_	FY 2004 Estimate		Y 2005 Estimate		2006 mate	FY 20 Estim		<u>Cos</u> <u>Comp</u>		<u>To</u>	otal Cost	
(U)	Not applicable	-	<del></del>	_										
(U)	D. Acquisition Strategy All major contracts within PE 0604740F were awarded after full and open	en co	ompetition.											
( <b>U</b> )	E. Schedule Profile		FY 200	1			FY	2002			FY 2	2003		
(U)	Product Line Component Qualification (Ongoing)  * - Completed Event  X - Planned Event  IC2A is a support and management level of effort program. All activities	1 *	*	3 *	4 *	1 *	2 X	3 X	4 X	1	2	3	4	
F	Project 2523	Page	e 4 of 10 Page	s						Exhibit R	-2A (PE	06047	'40F)	

	RDT&E PROC	RAM FI F	MFNT/P	ROJECT C	OST BE	REAKDOV	NN (R-3)		DATE	obruary 2	002
	Engineering and Ma				PE NUMB	er and title 10F Integra			ebruary 2	PROJECT <b>2523</b>	
( <b>U</b> )	A. Project Cost Breakdow	n (\$ in Thousand	ls)								
(U) (U)	Product Line Component Q Total	ualification						2 <u>001</u> 213 213	<u>FY 20</u> 22 22	24	FY 2003 226 226
( <b>U</b> )	B. Budget Acquisition Hist	tory and Plannin	g Informatio	on (\$ in Thousand	<u>ls)</u>						
(U)	Performing Organizations Contractor or Government Performing Activity Product Development Organ Hughes Raytheon AGCS TRW Unisys Contractor Support Support and Management O Program Office Support Test and Evaluation Organiz Not applicable.	Contract Method/Type or Funding Vehicle nizations CPFF CPFF CPFF CPFF CPFF ITSP rganizations Various	Award or Obligation Date  19 Dec 92 19 Dec 92 Dec 94 12 Feb 97 29 Sep 93 Various  Various	Performing Activity EAC  N/A N/A N/A N/A N/A N/A N/A N/A N/A	Project Office EAC  N/A N/A N/A N/A N/A N/A N/A N/A	Total Prior to FY 2001 453 1,000 50 0 30 0	Budget FY 2001 0 0 0 0 0 0 213	Budget FY 2002 0 0 0 0 0 0 224	Budget FY 2003  0 0 0 0 0 0 226	Budget to Complete  0 0 0 0 Continuing	Total Program 453 1,000 50 0 30 TBD 1,537
( <b>U</b> )	Government Furnished Pr  Item Description	operty: Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	<u>Total</u> <u>Progran</u>
P	roject 2523			Page	5 of 10 Pag	ges			Exhib	it R-3 (PE 0	604740F)

RDT&E PR	OGRAM ELEM	MENT/P	ROJEC	T COST BREAKDO	WN (R-3)		DATE <b>F</b> (	February 2002		
BUDGET ACTIVITY  05 - Engineering and	Manufacturing	Developn	nent	PE NUMBER AND TITLE  0604740F Integra  Applications	PROJECT 2523					
(U) Government Furnishe  Item Description Product Development P N/A Support and Manageme N/A	Contract Method/Type or Funding Vehicle Property ent Property	Award or Obligation Date	Delivery Date	Total Prior to FY 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	<u>Total</u> <u>Program</u>	
Test and Evaluation Pro N/A  Subtotals Subtotal Product Develor Subtotal Support and M Subtotal Test and Evalu Total Project	opment lanagement			Total Prior to FY 2001 1,533 874 2,407	Budget FY 2001 0 213 213	Budget FY 2002 0 224 224	Budget FY 2003 0 226 226	Budget to Complete TBD 0 TBD	Total Program TBD 1,537 TBD	
Project 2523				Page 6 of 10 Pages			Exhib	it R-3 (PE 06)	04740F)	

RDT&E BUDGET ITEM JU	JSTIFIC.	ATION S	SHEET (	(R-2A E	xhibit)		DATE	DATE February 2002			
BUDGET ACTIVITY  05 - Engineering and Manufacturing Deve		PE NUMBER AND TITLE  0604740F Integrated Command & Control  Applications						PROJECT <b>2524</b>			
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost		
2524 Reuse and Component Support	7,451	5,559	0	0	0	0	0	0	13,010		

### (U) A. Mission Description

The Reuse and Component Support project identifies, tests, and provides a set of common integrated infrastructure products for use by Air Force and Department of Defense program offices. This requires industry involvement for technology development and knowledge of direct and indirect impact to DoD missions in order to provide a skillful technical transition to fully state-of-the-art enterprise C2-based warfighting capability. Reuse and component architecture builds on the AF technical architecture and provides those pre-defined product line architectures with tested, reusable software components from mature programs. A software reuse strategy for DoD was developed as part of this effort. Efforts are continuing with development of a Product Line Asset Center Software Reuse Repository to evaluate and analyze enterprise C2 system components based on primarily commercial off-the-shelf (COTS) products through the National Product Line Asset Center (NPLACE) cooperative agreement. NPLACE functions include the application of standards compliance testing to ensure greatest interoperability among C2 systems.

#### (U) FY 2001 (\$ in Thousands)

(U) \$4,648 ASSET (U) \$1,873 NPLACE

(U) \$930 AF Product Line Engineering

(U) \$7,451 Total

## (U) FY 2002 (\$ in Thousands)

(U) \$2,581 ASSET (U) \$1,985 NPLACE

(U) \$993 AF Product Line Engineering

(U) \$5,559 Total

## (U) FY 2003 (\$ in Thousands)

(U) \$0 No Activity (U) \$0 Total

Project 2524 Page 7 of 10 Pages

Exhibit R-2A (PE 0604740F)

	RDT&E BUD	GET ITEM	JUSTIFI	CATION S	SHEET (F	R-2A Exh	nibit)	DA	TE February	/ 2002
	GET ACTIVITY - Engineering and Manu	facturing D	evelopme	nt	PE NUMBER 0604740 Applicat	F Integrat	ed Comm	and & Cont	rol	PROJECT <b>2524</b>
(U)	B. Project Change Summary Congress added \$7.8 in FY2001	for Reuse and	Component Su	upport.						
	Congress added \$5.6 in FY2002	2 for ASSET, N	PLACE, and A	AF Product Line	Engineering	(Reuse and Co	omponent Sup	port).		
(U)	C. Other Program Funding Su	immary (\$ in T FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
(U)	Not applicable	Actual	Littilate	Limate	Lsumac	Limate	Limate	Listimate	Complete	
(U)	D. Acquisition Strategy Not applicable.									
(U)	E. Schedule Profile			1	FY 2002	-	<u>FY</u> 1 2	2002 3 4	<u>FY</u> 1 2	2003 3 4
(U)	Not applicable.			1	2 .	7	1 2	3 4	1 2	J 7
F	Project 2524			Page	8 of 10 Pages				Exhibit R-2A (PI	E 0604740F)

	RDT&E PRO	GRAM ELE	MENT/PF	ROJECT CO	OST BR	REAKDOV	VN (R-3)		DATE <b>F</b> 6	ebruary 20	002
	Engineering and Ma	anufacturing	Developm	ent		er and title IOF Integra ations	ated Com	mand & C	ontrol		PROJECT <b>2524</b>
(U)	A. Project Cost Breakdov	vn (\$ in Thousand	<u>ls)</u>								
							FY 2		FY 200		FY 2003
(U)	Enterprise-wide Asset Iden	*	)					,648	2,58		0
(U)	Product Line Suitability Te	esting (NPLACE)						873	1,98		0
(U)	Product Line Engineering							930	99		0
(U)	Total						7,	451	5,55	9	0
	Congress added \$7.8 million	on in FY2001 for F	Reuse and Com	ponent Support.							
	C 11 1 0 5 6 '11'	. EX.0000 C	CCET NDI A	CE LAED 1	. I E	· · · · · · · · · · · · · · · · · · ·	1.0	. 0			
	Congress added \$5.6 million	on in FY2002 for A	ASSET, NPLA	CE, and AF Prod	uct Line Er	igineering (Rei	ise and Comp	onent Suppor	i).		
<b>(U)</b>	<b>B. Budget Acquisition His</b>	story and Plannin	g Information	ı ( <b>\$ in Thousand</b>	<u>s)</u>						
(U)	Performing Organizations	<u>s:</u>									
	Contractor or	Contract									
	Government	Method/Type	Award or	<b>Performing</b>	<b>Project</b>						
	Performing	or Funding	<b>Obligation</b>	<u>Activity</u>	<u>Office</u>	Total Prior	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>	Budget to	<u>Total</u>
	Activity	Vehicle	Date	EAC	<u>EAC</u>	to FY 2001	FY 2001	FY 2002	FY 2003	Complete	Program
	Product Development Orga	nizations									
	West Virginia High	FFP	18 Nov 96	N/A	N/A	0	1,730	1,826	0	0	3,556
	Technology Center										
	Raytheon/Hughes/TRW	CPFF	20 Feb 97	N/A	N/A	0	0	0	0	0	0
	SAIC	ITSP	Various	N/A	N/A		3,850	2,323	0		6,173
	ProLogic	FFP	Various	N/A	N/A		855	913	0		1,768
	Contractor Support	ITSP	Various	N/A	N/A	0	374	0	0	0	374
	Support and Management C	<u>Organizations</u>									
	Horizons Tech, Inc.						642	497	0	0	1,139
	Test and Evaluation Organi	zations									
	Not applicable.										
D	roject 2524			Paga	9 of 10 Pag	700			Evhih	it R-3 (PE 06	S04740E)
	10,601 2324			rage	y of to Pas	503			LAHID	IC IX-3 (F E 00	) + / + OI )

	RDT&E PROG	RAM ELE	MENT/P	ROJEC	T COST BRI	EAKDOV	VN (R-3)		DATE <b>F</b> e	ebruary 20	02
	GET ACTIVITY - Engineering and Mar	PE NUMBER AND TITLE  1/2 0604740F Integrated Command & Co  Applications							project projec		
(U)	Item Description Product Development Propert Not applicable.	Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 2001	<u>Budget</u> FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	<u>Total</u> <u>Program</u>
	Support and Management Pro Not applicable.  Test and Evaluation Property Not applicable.  Subtotals Not applicable.	pperty				Total Prior to FY 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	<u>Total</u> <u>Program</u>
	Subtotal Product Developmer Subtotal Support and Manage Subtotal Test and Evaluation					0	6,809 642	5,062 497	0	0 0	11,871 1,139
	Total Project					0	7,451	5,559	0	0	13,010
F	Project 2524				Page 10 of 10 Pag	es			Exhibi	it R-3 (PE 06)	04740F)